

PATENT APPLICATION**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

Docket No: Q92827

Mitsuhiro KANETA

Appln. No.: 10/565,553

Group Art Unit: 1796

Confirmation No.: 2076

Examiner: Michael BERNSHTEYN

Filed: January 23, 2006

For: ANAEROBIC CURABLE COMPOSITION

EXECUTED DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Mitsuhiro KANETA, hereby declare and state:

I am a citizen of Japan;

I have received the degree of Master in March 2001 from Toyohashi University of
technology;

I have been employed by THREEBOND CO., LTD. since April 2001, where I engaged in
the development of anaerobic adhesive; and

I am the inventor of the above-identified application and am familiar with the technical
field of the present invention;

In order to demonstrate the unexpectedly superior curing time and adhesive strength of
the presently claimed invention, the following experiments were conducted by me or under my
direct supervision.

**DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Application No.: 10/565,553**

Attorney Docket No.: Q92827

Object

The experiments are to compare the curing time and adhesive strength of the EDTA complexes having an alkali metal and a metal other than alkali metals against an EDTA complex merely having an alkali metal.

Experiments

Experimental Method:

1. Preparation of the samples

The same procedure as in Examples 1 to 7 described on page 13 of the present specification, except that the starting materials were used as follows to prepare anaerobic curable compositions, respectively.

Starting Materials:

2-hydroxyethylmethacrylate (HEMA): 10 parts (Component a)

2,2-bis [4-(methacryloxyethoxy)phenyl] propane: 90 parts (Component a)

cumene hydroperoxide: 1 part (Component b)

o-benzoic sulfinide: 1 part (Component c)

benzothiazole: 0.2 part (polymerization accelerator)

toluhydroquinone (THQ): 0.2 part (storage stabilizer)

respective complexes of disodium ethylenediaminetetraacetate $\text{EDTA} \cdot 2\text{Na} \cdot \text{M}$ (in which

"M" is Cu(II), Fe(II), Ni(II), Zn(II), Ca(II), Mg(II) or Mn(II)): 0.02 part

DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Application No.: 10/565,553

Attorney Docket No.: Q92827

2. Evaluation test

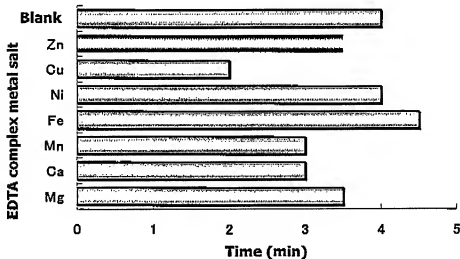
Each of the resulting compositions was subjected to the following evaluation tests. The measurements of the setting time and adhesive strength of each sample were carried out in the same manner as disclosed on pages 13 to 14 in the present specification, respectively. Incidentally, as adherend, iron bolt/nut, zinc chromate bolt/nut, Stainless steel (SUS) bolt/nut and Aluminum bolt/nut were used on the setting time measurement and zinc chromate bolt/nut was used on the adhesive strength measurement.

Results

The results are shown below. Incidentally, "Blank" used EDTA·2Na.

Setting Time

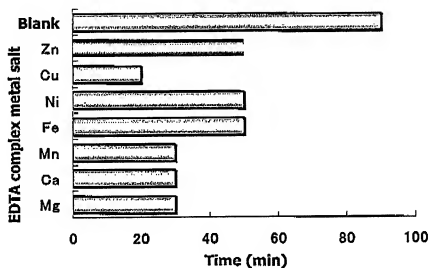
Adherend: Fe bolt/nut



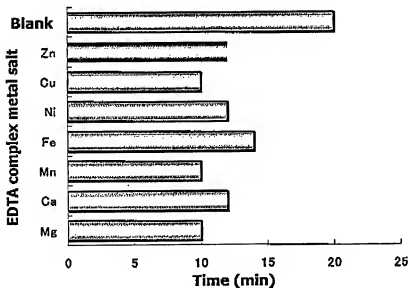
DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Application No.: 10/565,553

Attorney Docket No.: Q92827

Adherend: zinc chromate bolt/nut



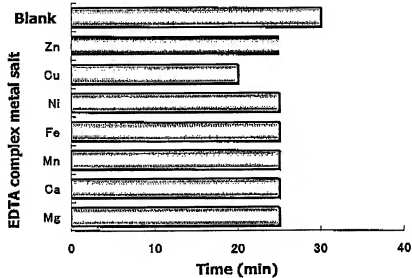
Adherend: SUS bolt/nut



DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Application No.: 10/565,553

Attorney Docket No.: Q92827

Adherend: Al bolt/nut

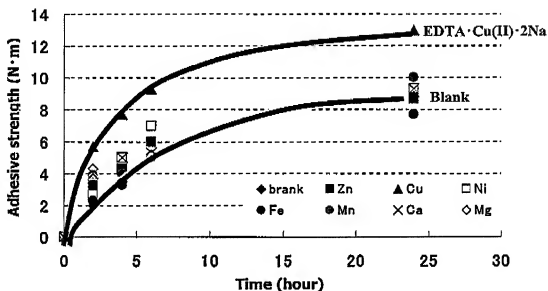


DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Application No.: 10/565,553

Attorney Docket No.: Q92827

Adhesive Strength

Adherend: zinc chromate bolt/nut



Analysis and Conclusion

Based on the above results, I am able to conclude that EDTA·2Na and a metal other than alkali metals exhibits faster curing to a variety of substrates as well as stronger adhesion than EDTA·2Na that does not have a metal other than alkali metals. Specifically, in the case where adherend is active metal such as iron, there is no remarkable difference in setting time. However, in the case where adherend is inert metal such as zinc chromate, the adhesive strength against such a inert metal is also improved, in addition to the improvement of the setting time, by using EDTA·2Na and a metal other than alkali metals.

DECLARATION UNDER 37 C.F.R. § 1.132
U.S. Application No.: 10/565,553

Attorney Docket No.: Q92827

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: March 18, 2010

Mitsuhiko Kaneta
Mitsuhiro KANETA